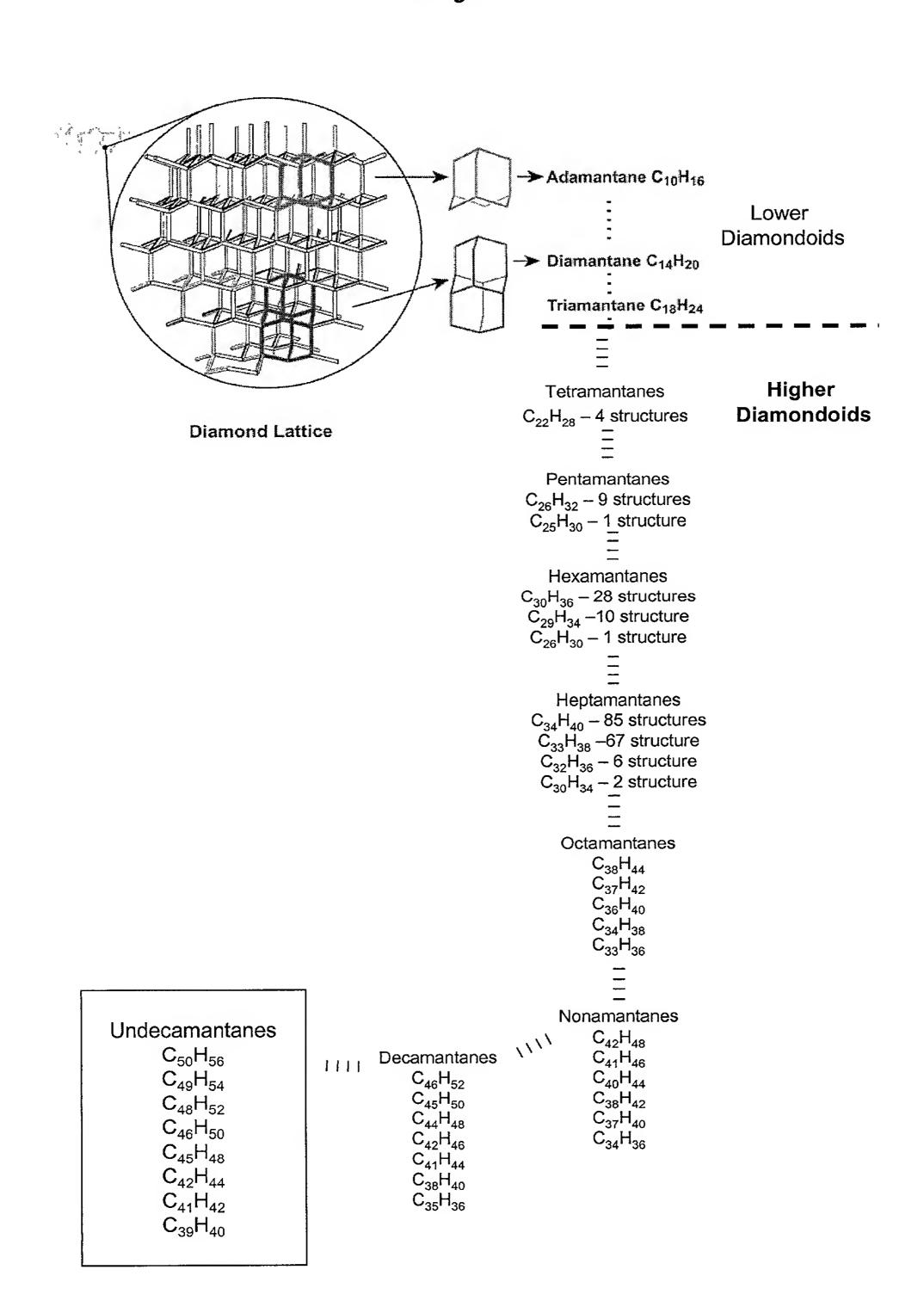
TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 1 of 24

FIG. 1



TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 2 of 24

FIG. 2

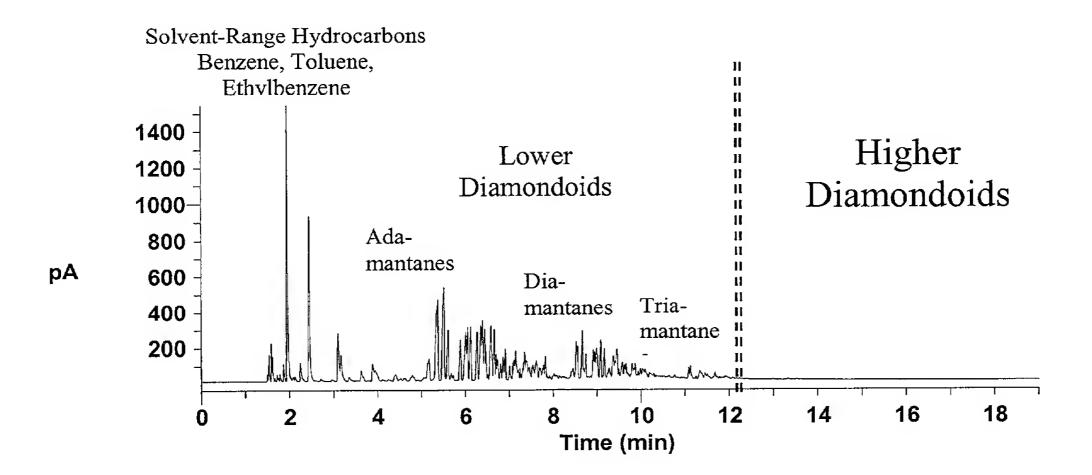
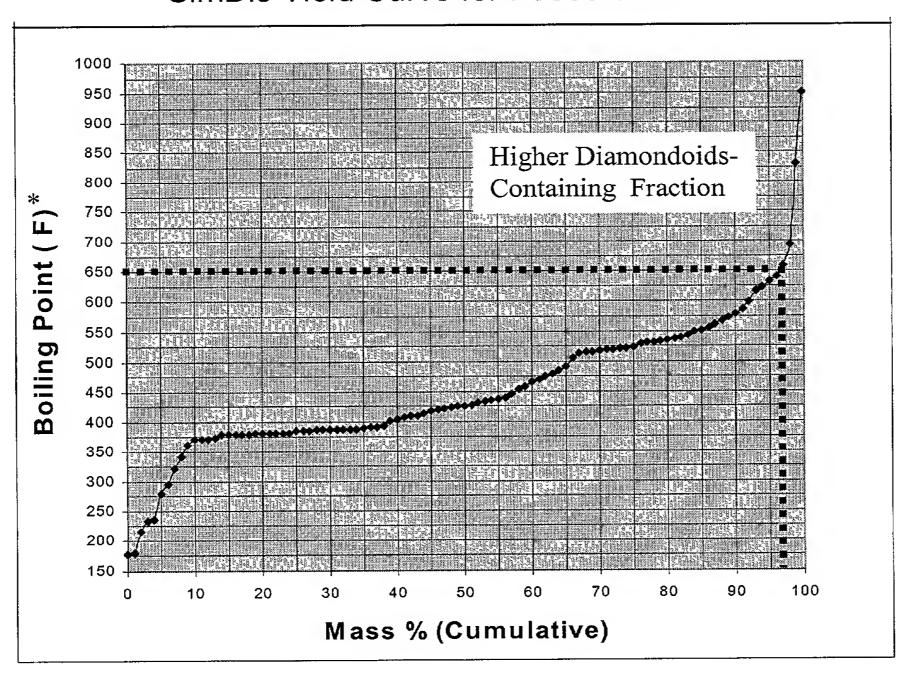


FIG. 3
SimDis Yield Curve for Feedstock B



^{*} Atmospheric-Equivalent

The first self of the first was not self of the first self of the

APPLN. FILING DATE: DECEMBER 12, 2001

TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 3 of 24

FIG. 4

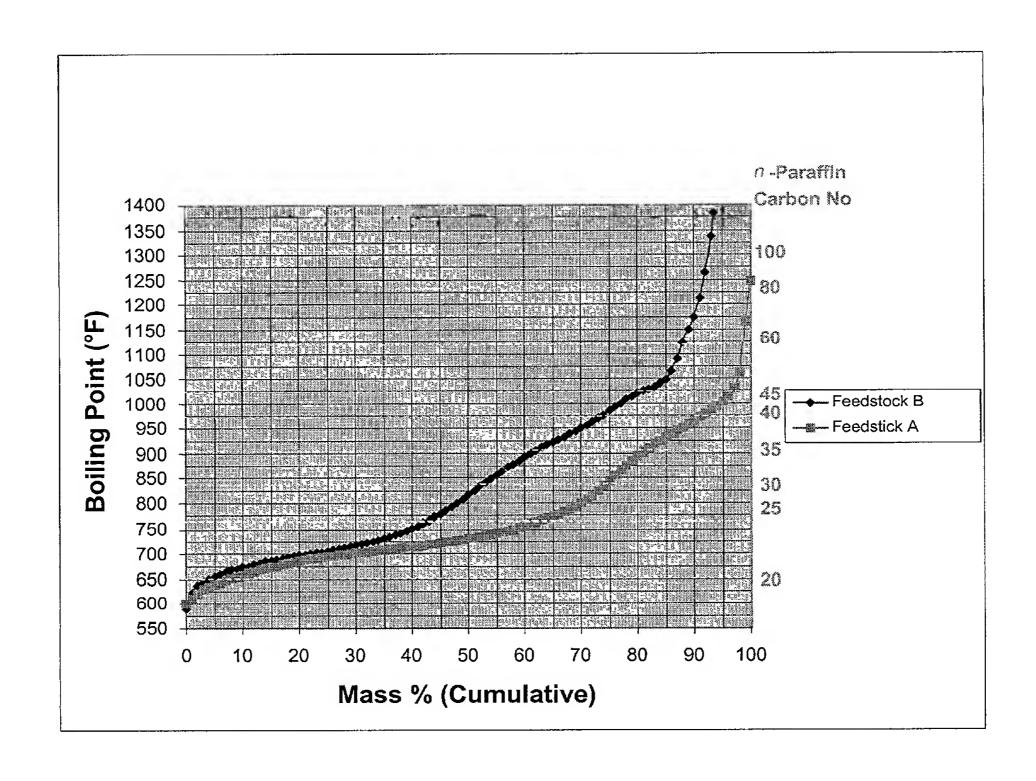
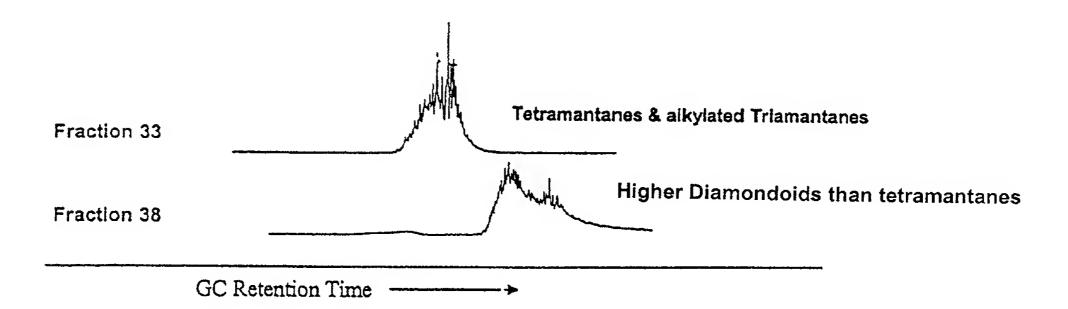


FIG. 5



COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 4 of 24

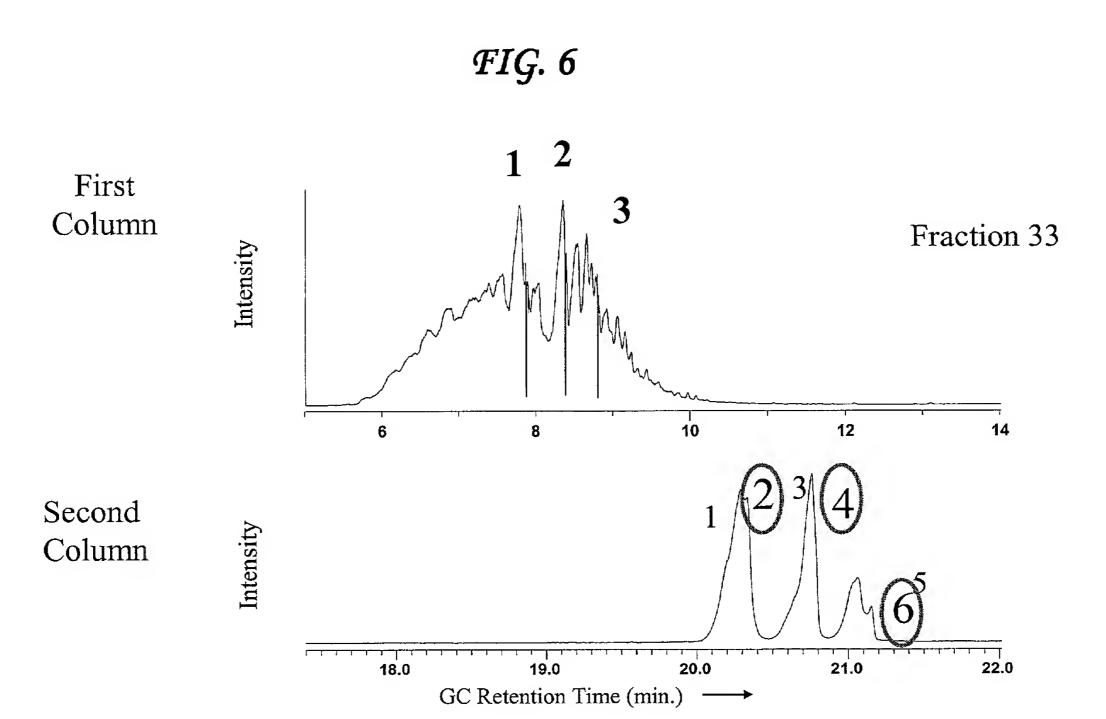
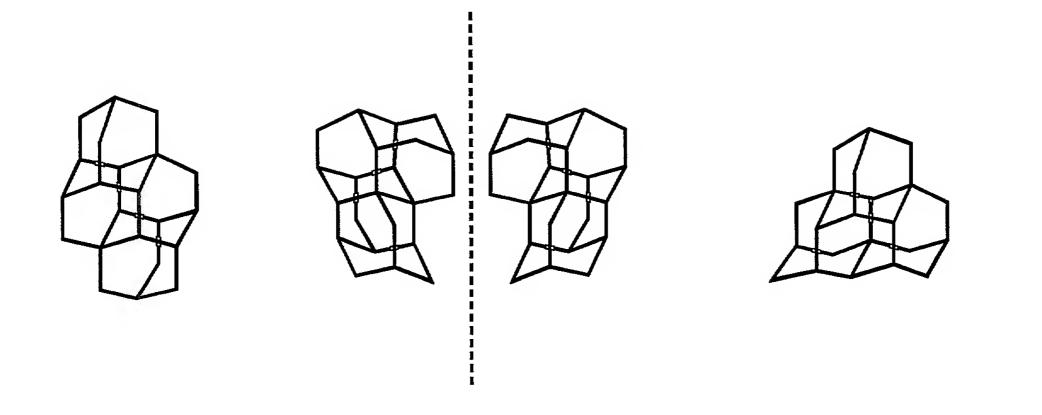


FIG. 7

mirror plane



[121] Tetramantane

[123] Tetramantane (ENANTIOMERS) [1(2)3] Tetramantane

TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 5 of 2 **SHEET 5 of 24**

FIG. 8A

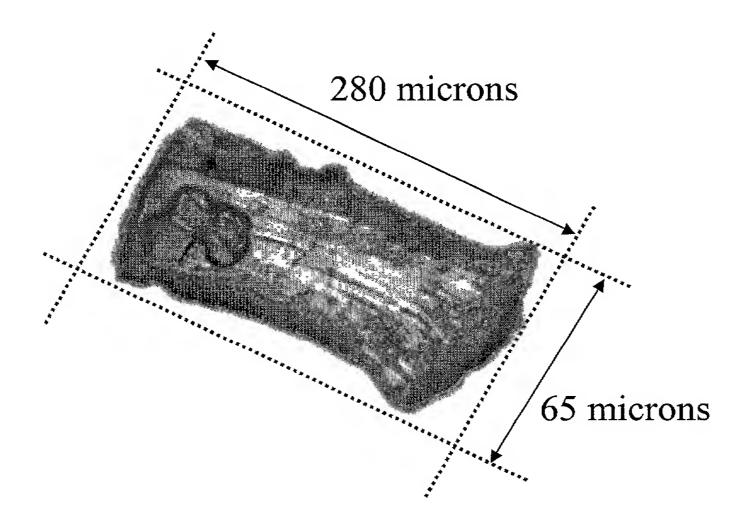


FIG. 8B

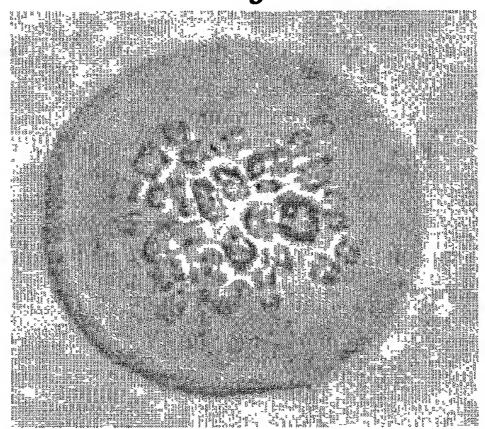
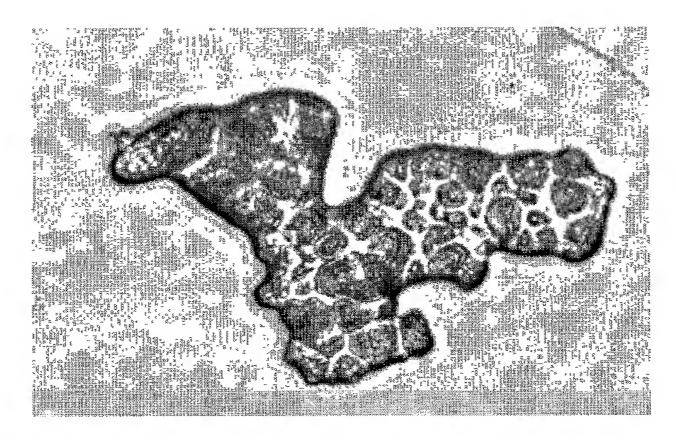


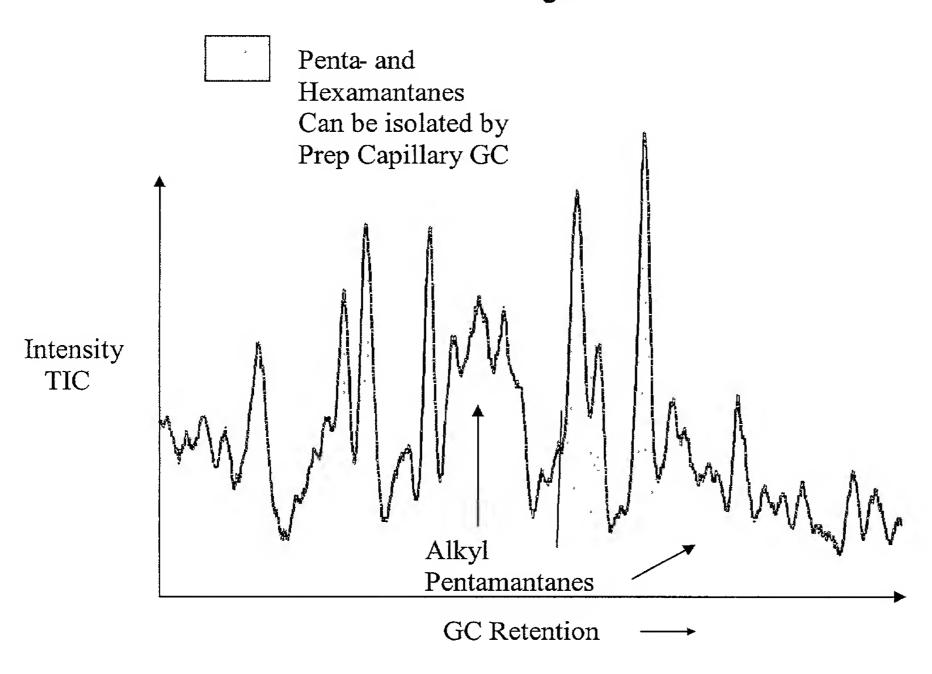
FIG. 8C

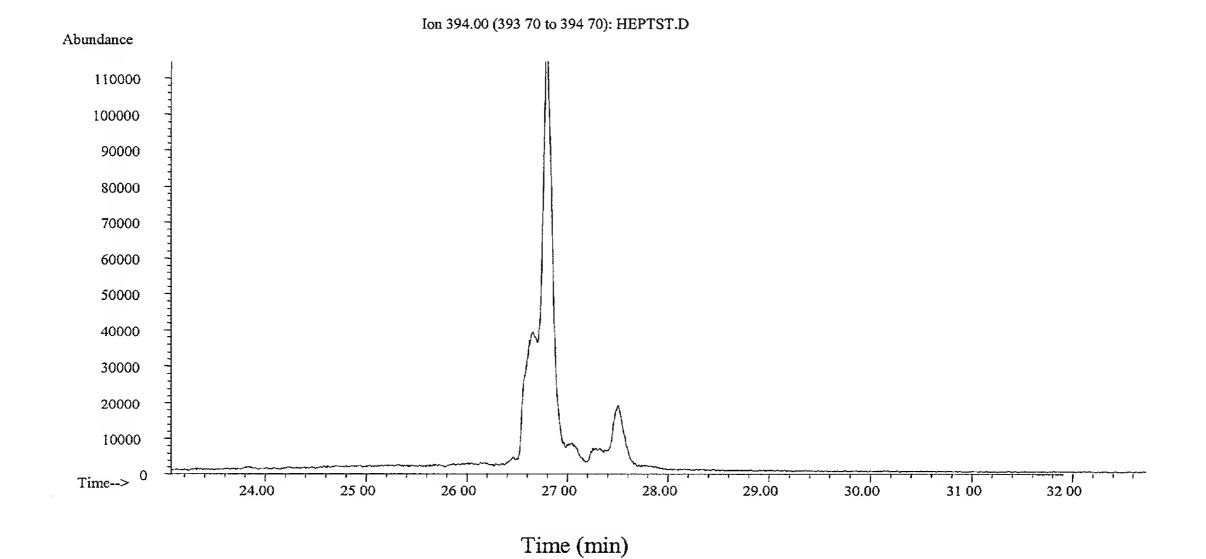


TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON **SHEET 6 of 24** APPLICATION SERIAL NO: HEREWITH

FIG. 9

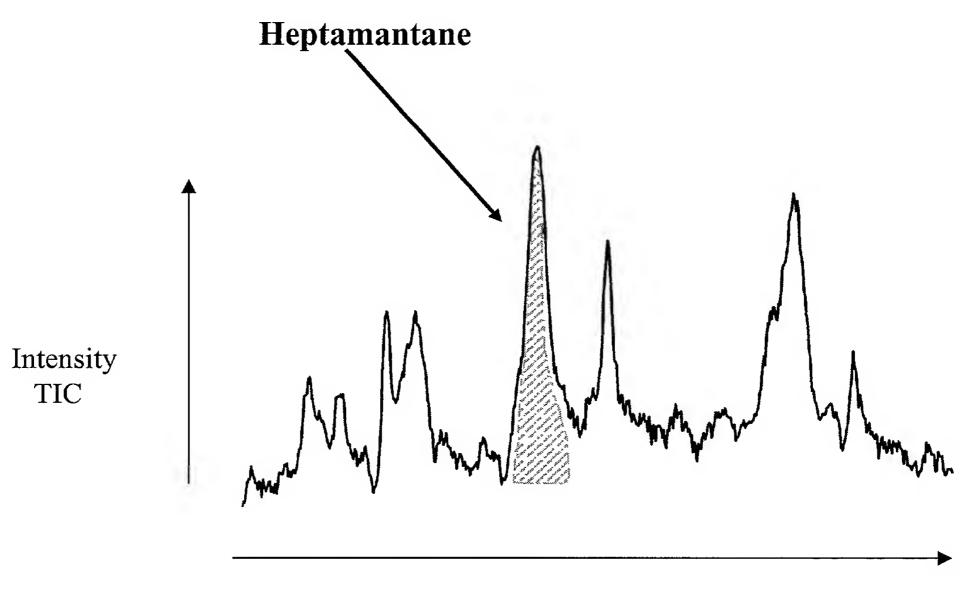




TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

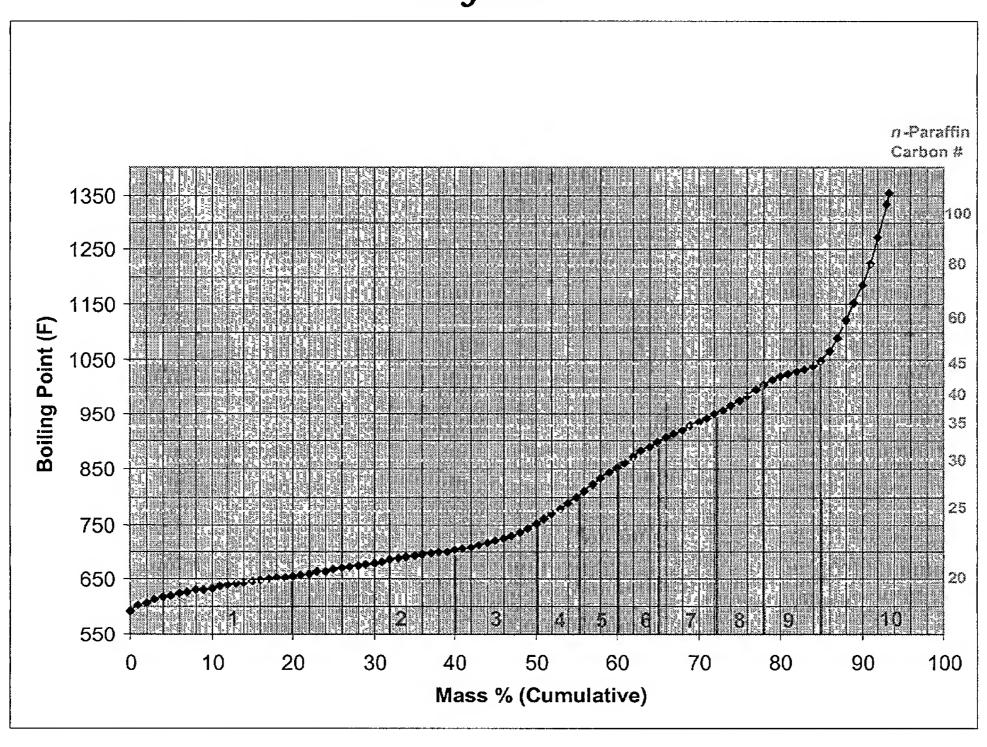
INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON **SHEET 7 of 24 APPLICATION SERIAL NO: HEREWITH**

FIG. 11



GC Retention Time

FIG. 12



TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 8 of 24

FIG. 13

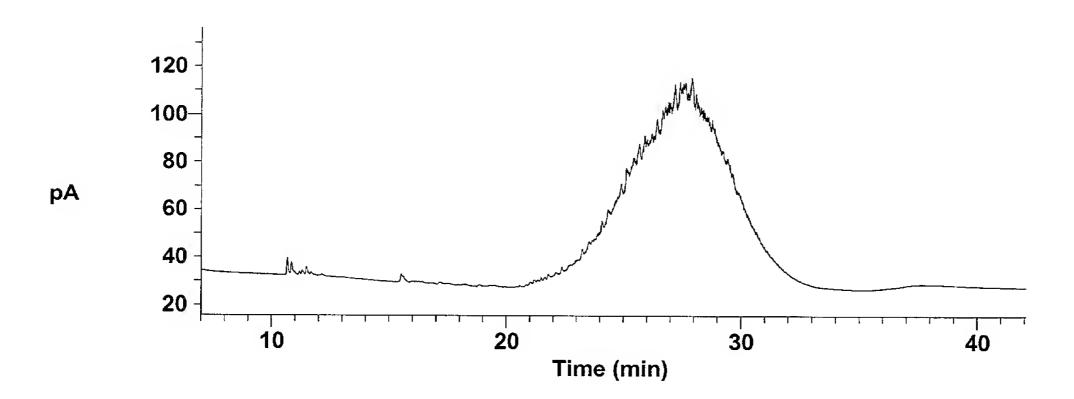
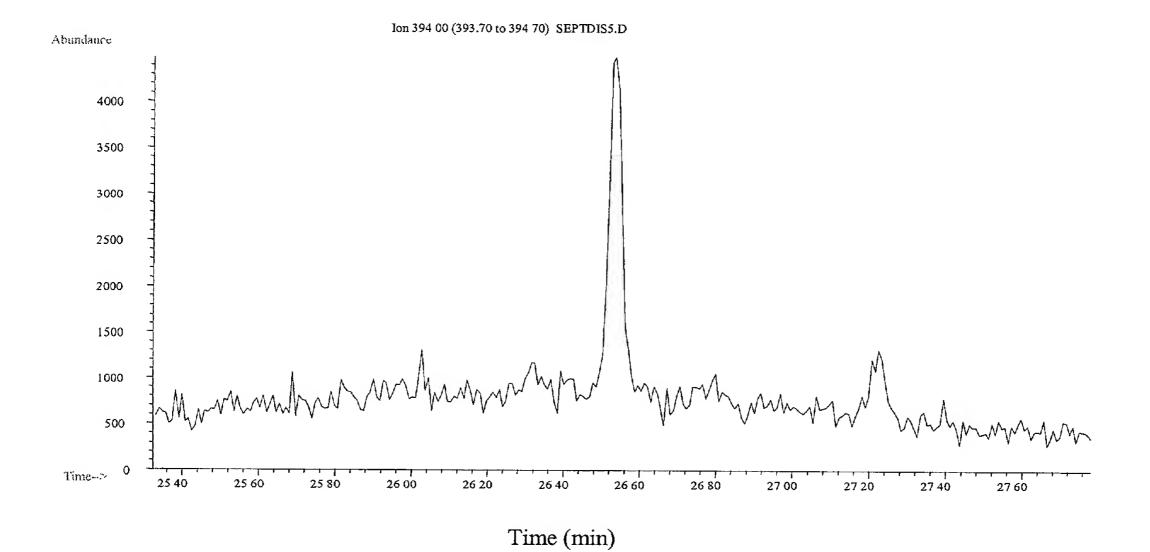


FIG. 14



TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 9 of 2 **SHEET 9 of 24**

FIG. 15

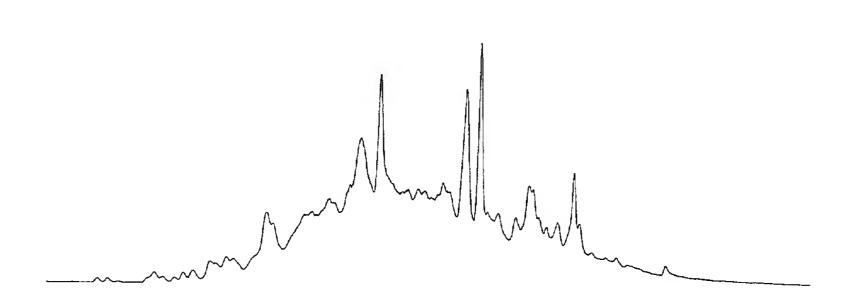
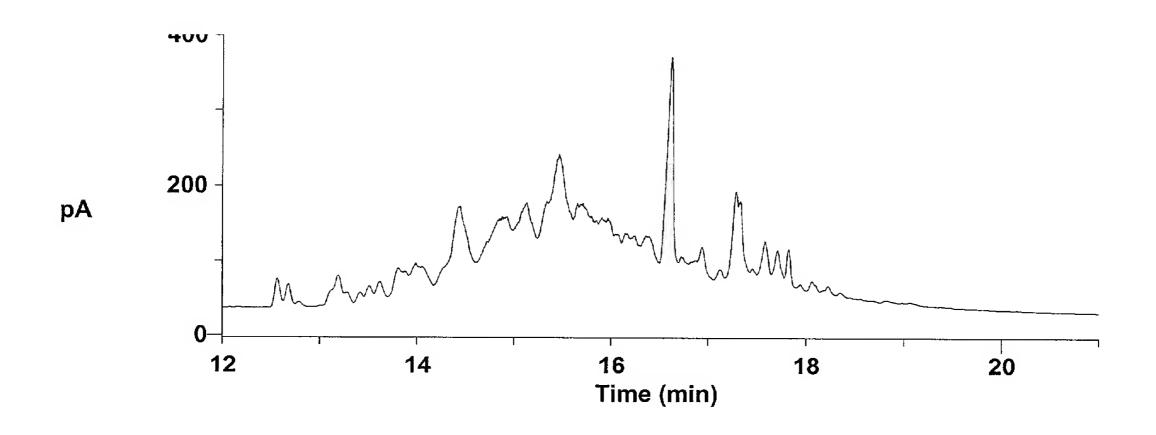


FIG. 16

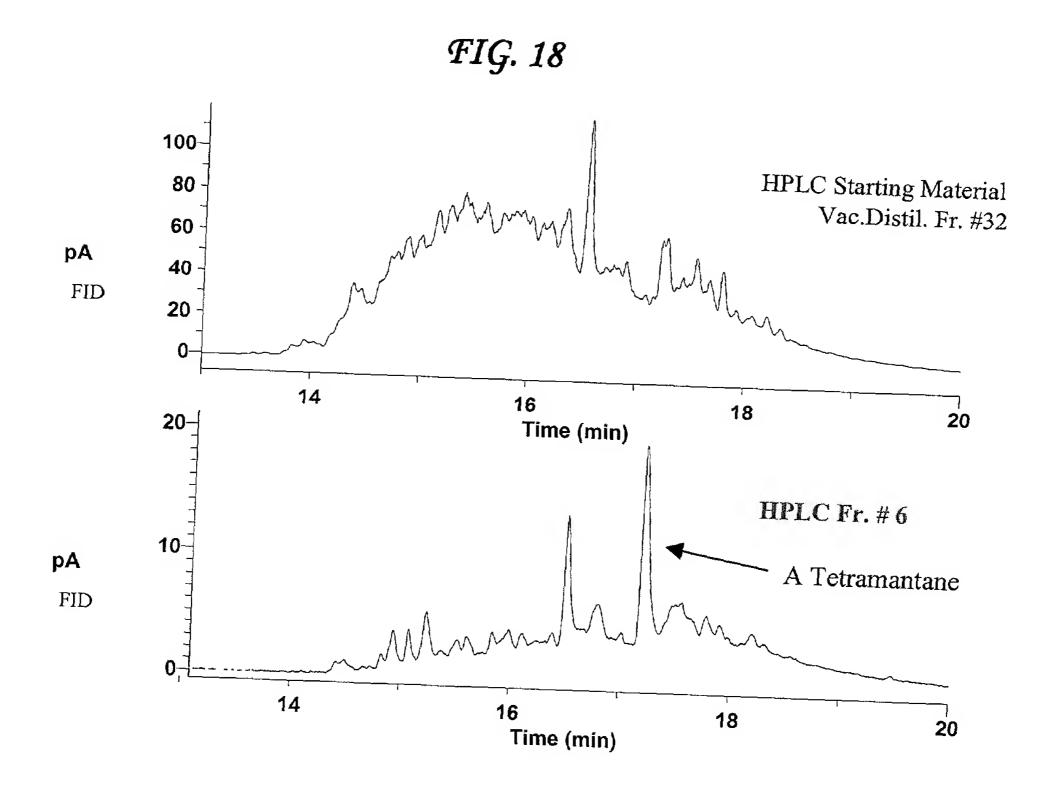


The state of the s

172

APPLICATION SERIAL NO: HEREWITH SHEET 10 of 24

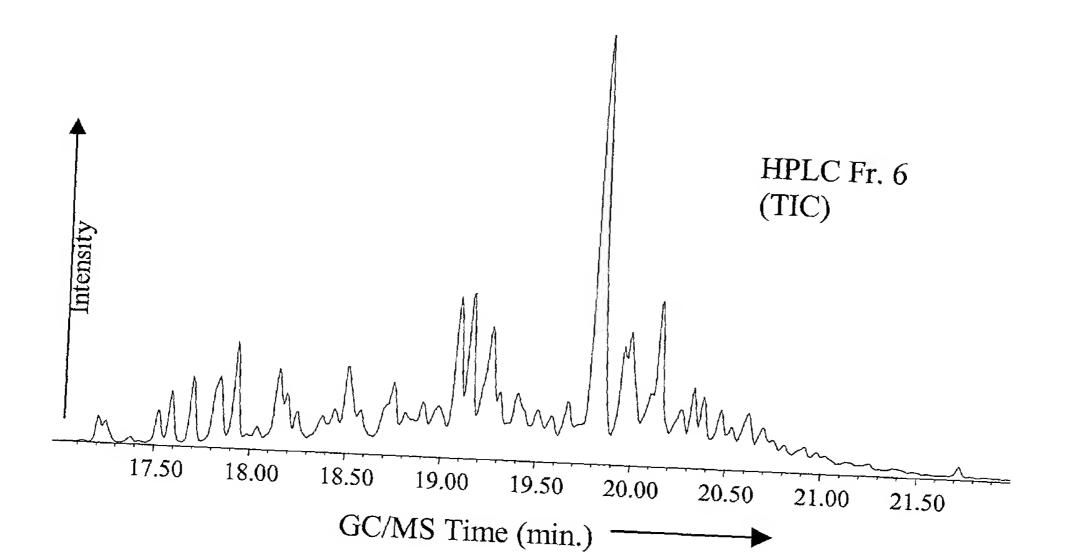
FIG. 17 1 2 5 800 mAU 600 RI 400 14 16 18 20 22 24 26 28 Time (min)

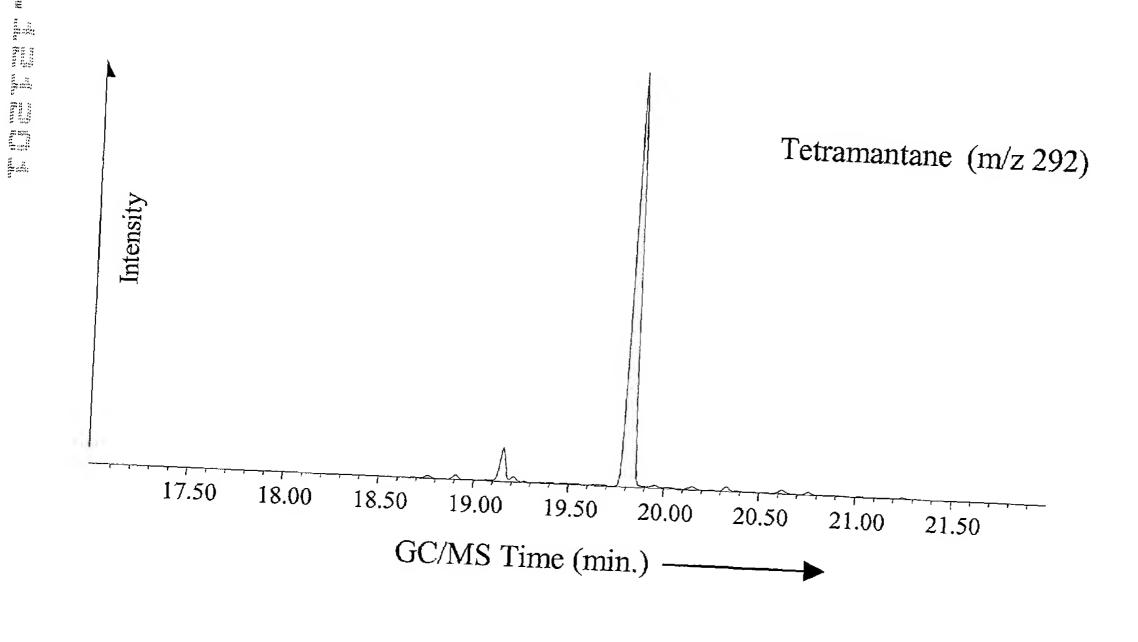


TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

refle first forth rolling and the forth

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH **SHEET 11 of 24**



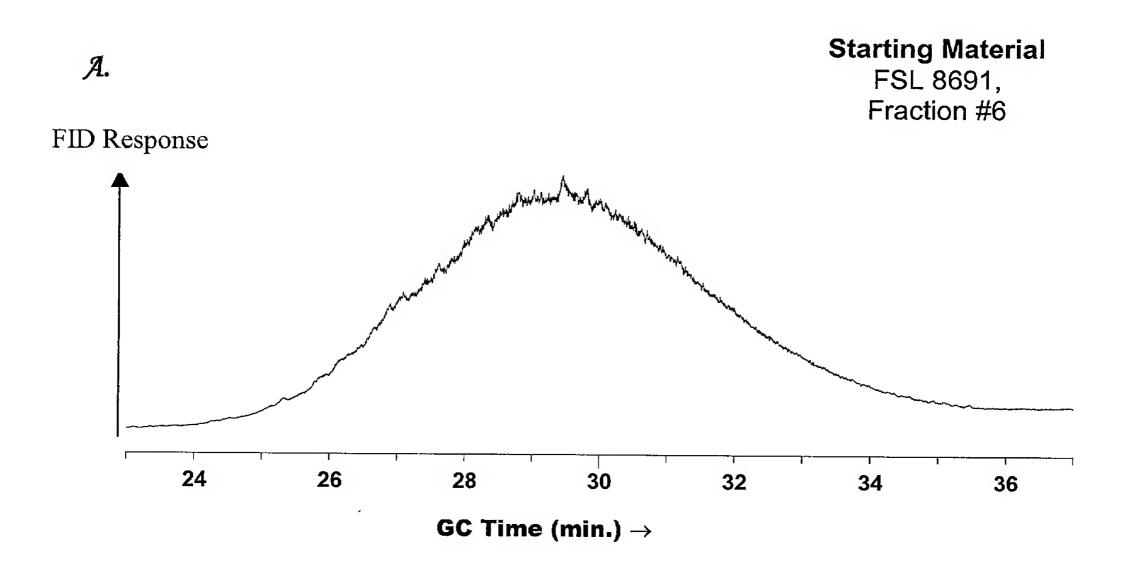


TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

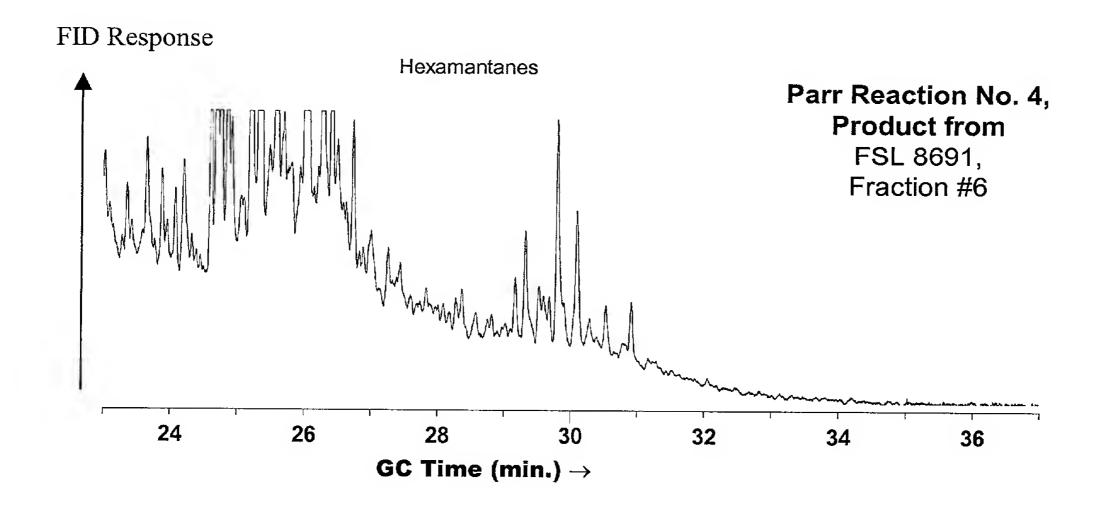
COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 12 of 24

FIG. 20



 \mathcal{B} .

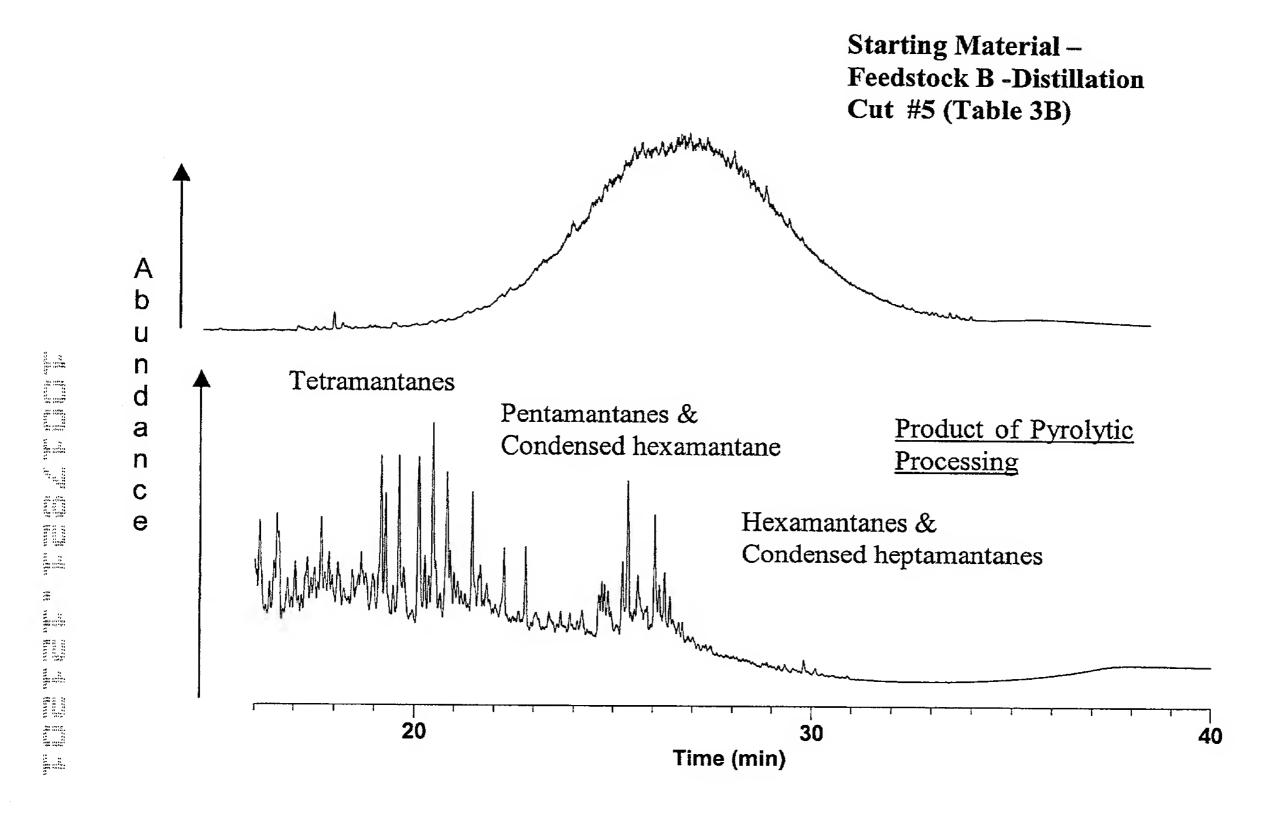


TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 13 of 24

FIG. 21



TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 14 of 24

FIG. 22

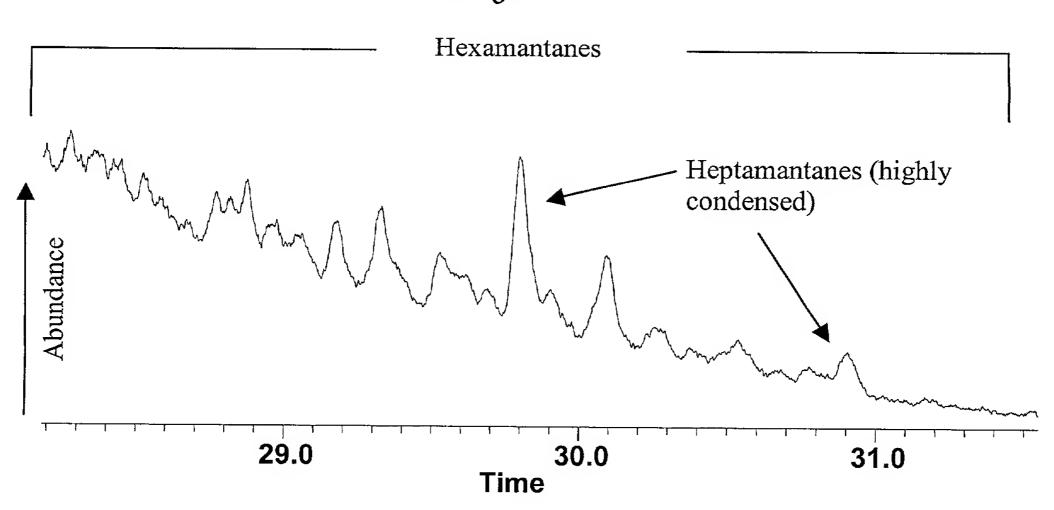


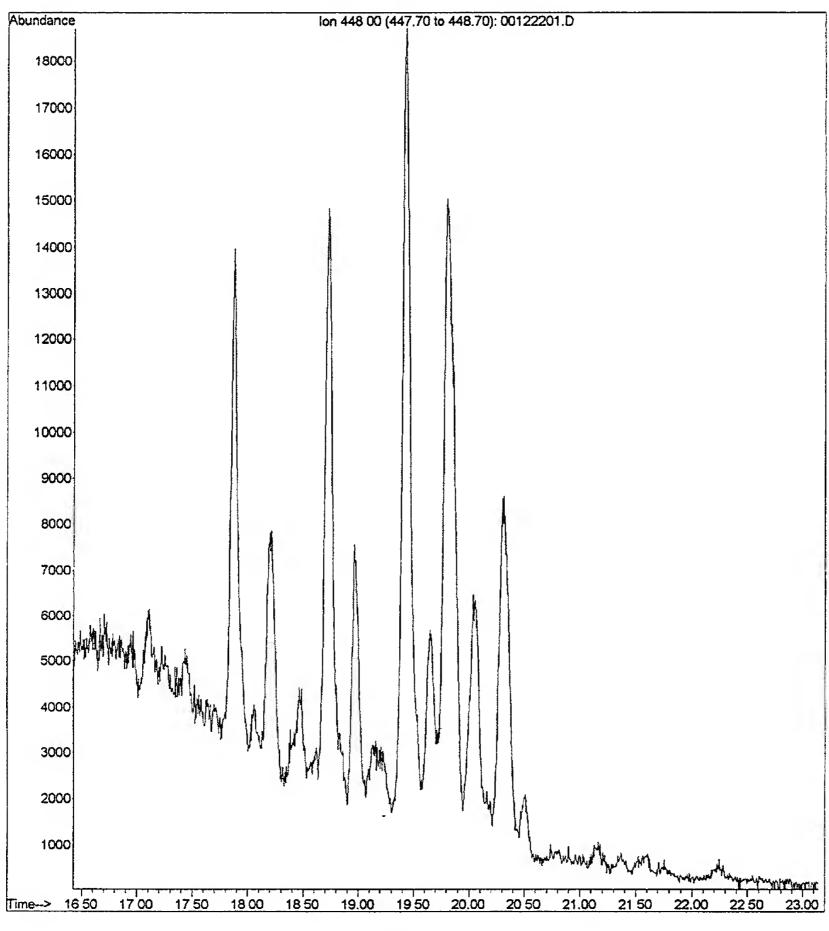
FIG. 23



APPLN. FILING DATE:

TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON **SHEET 15 of 24** APPLICATION SERIAL NO: HEREWITH

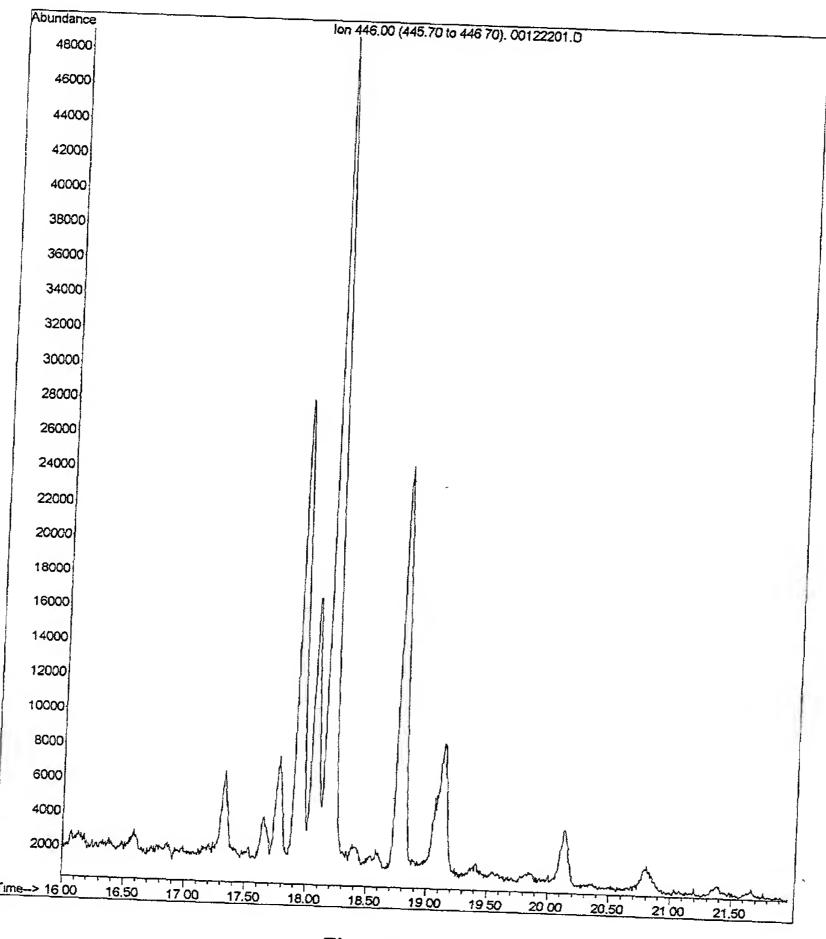


Time (min)

TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 16 of 24

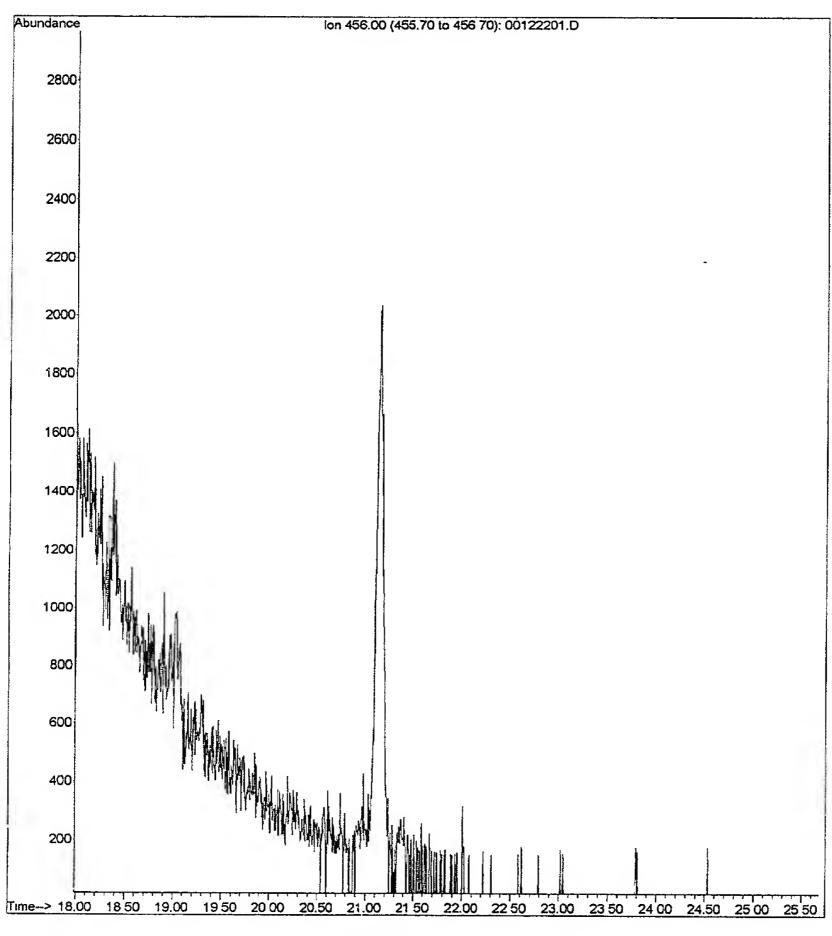
FIG. 25



Time (min)

TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH **SHEET 17 of 24**



Time (min)

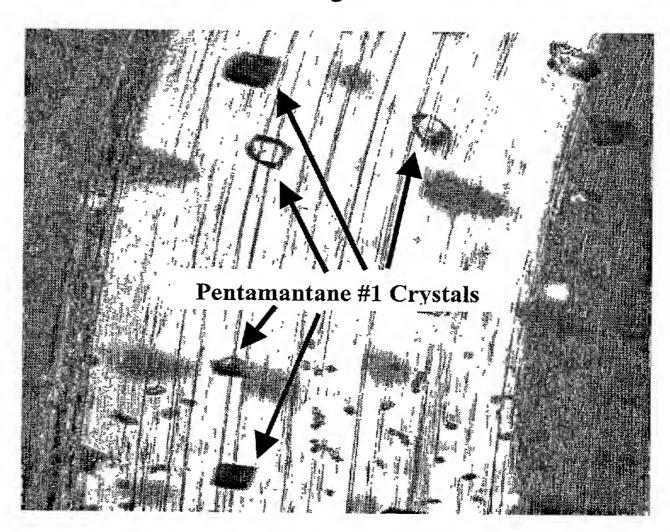
TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

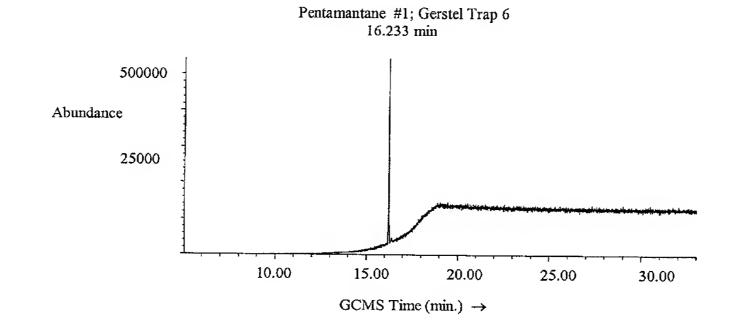
INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON **SHEET 18 of 24** APPLICATION SERIAL NO: HEREWITH

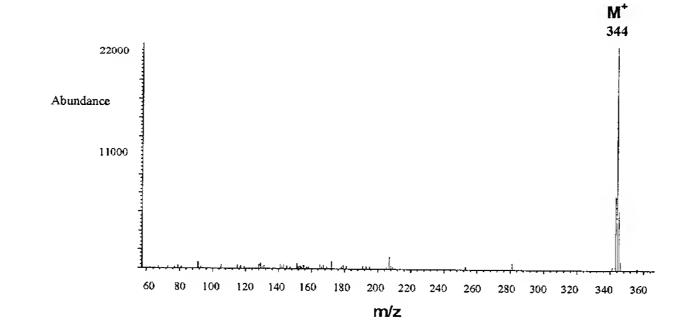
FIG. 27

A.



 \mathcal{B} .





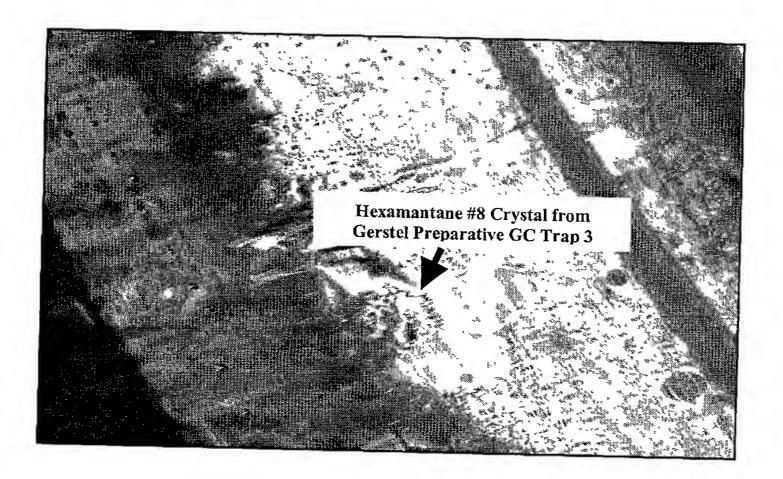
TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

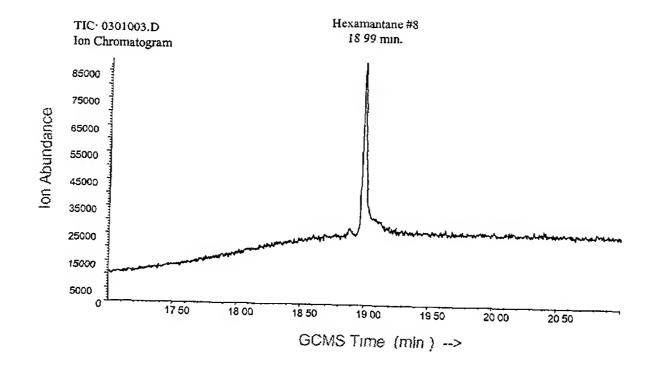
INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 19 of 24

FIG. 28

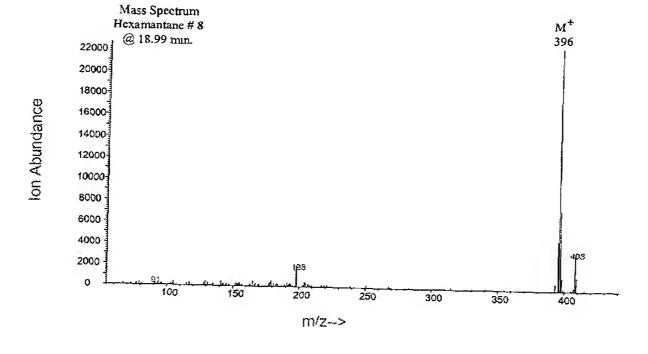
A.



 \mathcal{B}



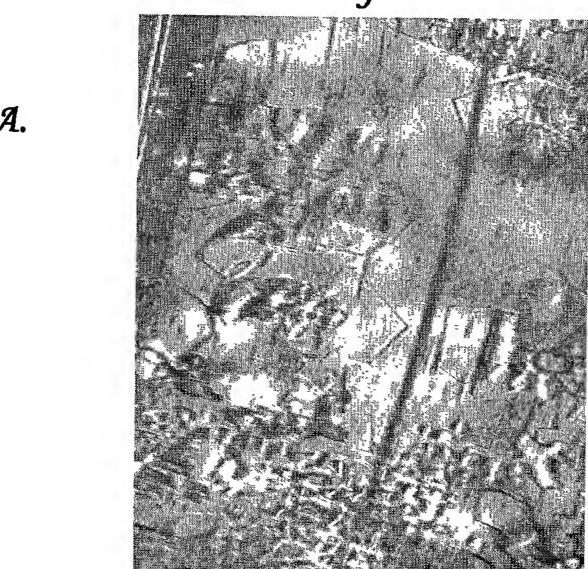
C.



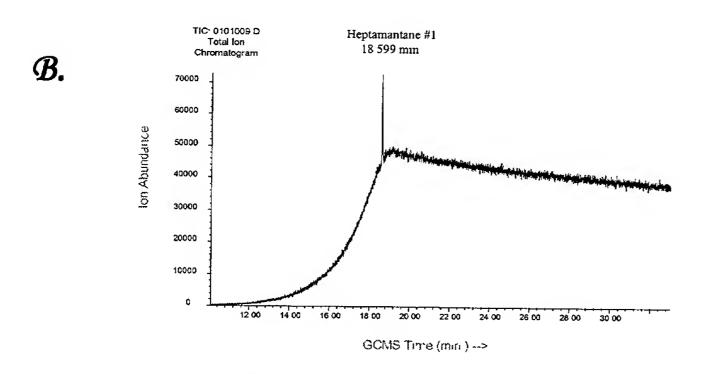
TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

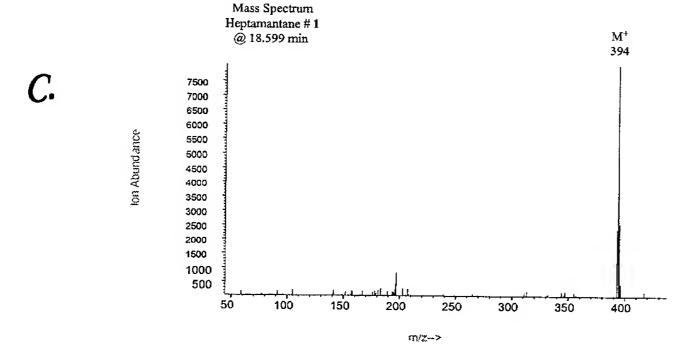
INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 20 of 24

FIG. 29



Heptamantane #1 Crystals





TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 21 of 24

508 456 496 548 484 536 588 432 576 628 420 420 524 Molecular Weights 342 446 498 550 434 486 538 330 290 642 382 500 552 604 448 656 344 396 Undecamantane amondoid Heptamantane Pentamantane Nonamantane Tetramantane Decamantane Hexamantane Higher Octamantane Ö Number of Molecular Formulae 4 5 9 7 8 2 2 4 Diamond Crystal Cage Units Number of 9 ~ ထ တ

TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH SHEET 22 of 24

			Distillati	on Cuts	Distillation Cuts Made on		heric Re	sid of Fee	Atmospheric Resid of Feedstock B (°F)	(₀)
	601-656	656-702	702-752	752-800	800-852		900-950	950-976	976-1000	1000,4028
Higher Diamondoid	Fr.1	Fr.2	Fr.3	Fr.4	Fr.5	Fr.6	Fr.7	F. 8	Fr. 9	Fr.10
Tetramantanes	And the second s		A Company of the Comp							
Pentamantanes										
Cyclohexamantanes						The second secon				
Hexamantanes					and the second s					
Heptamantanes					The second secon					
Octamantanes									And the second s	
Nonamantanes										
Decamantanes						The second secon				
Undecamantanes										

Hart of the state of the state through the state of the s

APPLN. FILING DATE: DECEMBER 12, 2001

TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS

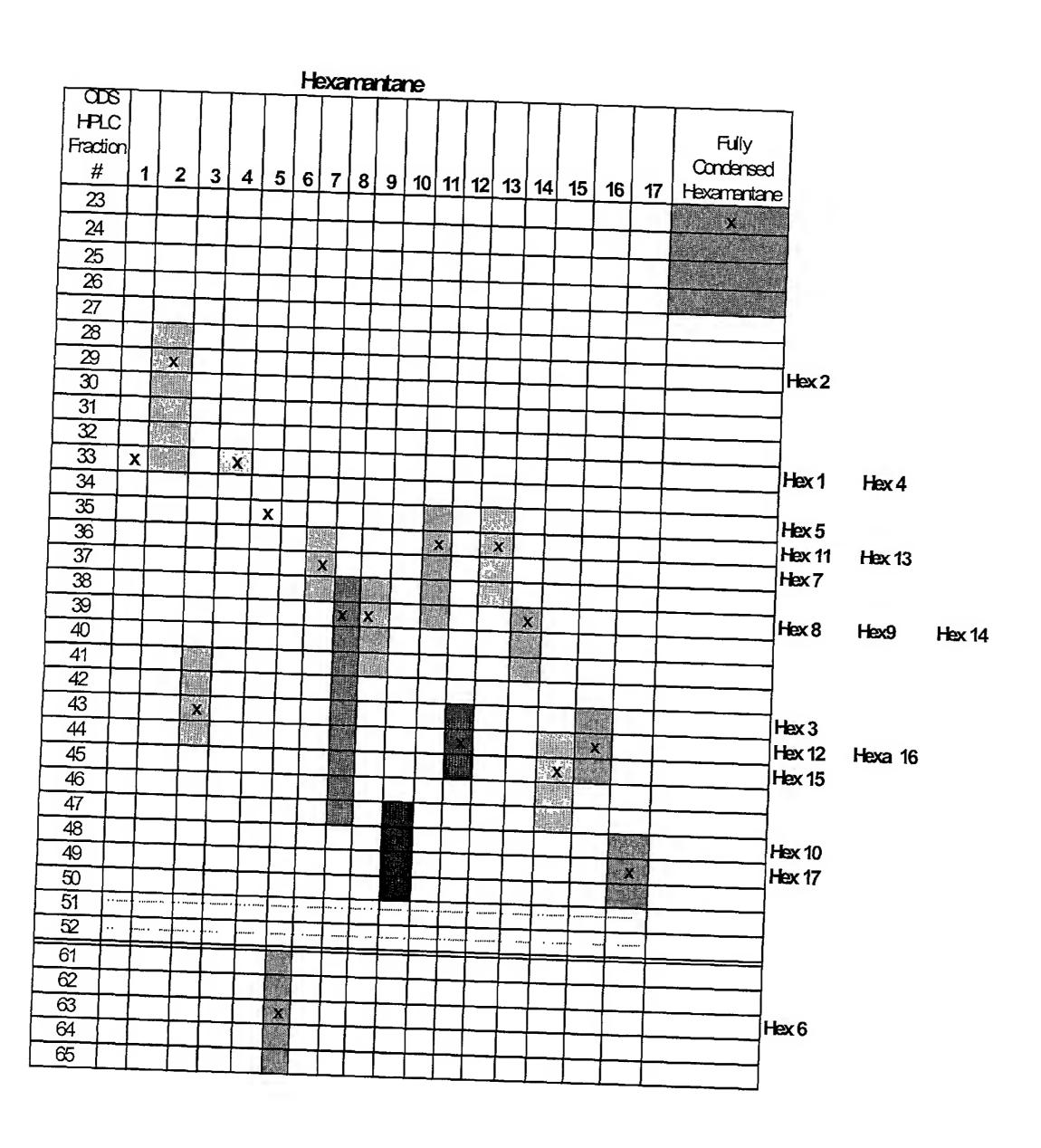
COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON

APPLICATION SERIAL NO: HEREWITH

SHEET 23 of 24

FIG. 32



TITLE: PROCESSES FOR THE PURIFICATION OF HIGHER DIAMONDOIDS AND COMPOSITIONS COMPRISING SUCH DIAMONDOIDS

INVENTOR(S): JEREMY E. DAHL AND ROBERT M. CARLSON APPLICATION SERIAL NO: HEREWITH **SHEET 24 of 24**

Hypercarb		T			Τ	T	Γ	Τ		Γ	Γ	Γ	Г	1	1	T -	Τ.	Fully	7
HPLC Fraction			1		1		1	1				1					1	Condensed	
#	1	2	3	4	5	6	7	8	9	10	111	12	13	14	15	16	17		
1		 	 	 	1	 	 	╁	 	10	' '	'-	13	14	10	10	17	Hexamantane	4
2		 	┼	 -	 	+	 	┼─		-	 	 	 			-	<u> </u>]
3		 	-		-	├	<u> </u>	-	<u> </u>	<u> </u>	<u> </u>					<u> </u>			
		-			<u> </u>	<u> </u>			<u> </u>]
4		ļ				<u> </u>		<u></u>		<u> </u>	<u></u>							X	
		<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>										
26		<u> </u>																	
27													X			 	-		, ,
28		1						†								 -	 		Hex
29		 	-		-			-		deres d							<u> </u>		
	. 3 (ļ	<u> </u>					<u> </u>						Х		<u> </u>			Hex
30	X.	ļ																	Hex
31					<u> </u>														Hex
32																			Hex
33											X								
34				·													 		
35																			
43																			
44						X											 		Hex
45	, ,											一							пех
46																		<u> </u>	
47										-	-+								
48					\neg											-			
49			-									\dashv							
50			 -													Х			Hex '
		-	- +						Х		_								Hex !
51						_ !				1			İ						
52				- 1												-			
53						-					\dashv								
		х	-			-+					 								
54												\perp					i		Hex 2
55											ı	- 1		- 1					
56																			
57				T		1					_	一十					_		
58						-		+	 -	\dashv	- 			-					
·	The same		\dashv	\dashv		-+		-	\dashv	-		-							
59	3770					\bot													
60												T							
61		40.5																	
62										\neg					-				
72												-							
73	+		_		$\overline{}$			+	-	-+	\dashv	\dashv	_						
74	+			_			5	-+											
75	+				_		X			_	_	\bot	$\bot\!\!\!\!\bot$	_					
	-		\dashv	-				_											iex 7
76	-			_					_										
77	\bot																		
78																			
84				-	_	- -		—F											